

Hiroshi HARA\*: **A new species of *Cotylanthera* (Gentianaceae)  
from Philippines, with a conspectus of the genus**

原 寛\*: *Cotylanthera* 属 (リンドウ科) について\*\*

During the 5th Botanical Expedition to Himalaya organized by the University of Tokyo in 1972, we have fortunately found on August 7th a large number of flowering individuals of *Cotylanthera paucisquama* C.B. Clarke at Palmajua (alt. 2200 m) in the Singalila Range of the Darjeeling District. They were growing among fallen leaves on shady ground in evergreen forest of *Quercus*, *Castanopsis*, *Symplocos*, *Aucuba*, etc.

As shown in Fig. 1, they are variable especially in size. The stems are 4–15 cm high, quadrangular, always simple with a solitary flower, and the upper internodes are generally elongated. The peduncle is also elongated, and 1–3.5 cm long. The flowers are 15–25 mm in diameter and pale mauve. The corolla-lobes are narrow oblong, obtuse at the apex, 8–12 mm long and 1.8–3 mm wide. The stamens are slightly curved on one side. The anthers are yellow, sagittate-lanceolate, 3.5–5.5 mm long, deeply cordate at the base, obtuse at the apex, 4-celled in the lower part but the cells are united in the upper part, and dehiscent by a small apical pore; the filaments are slender, shorter than the anther, and 2–3 mm long; the pollen grains are tricolporate,  $8-9\mu \times 10-11\mu$  in size, and smooth. The style is 6–8 mm long, slightly exceeding the stamens, and slightly curved, and thickened towards the base; the stigma is small and capitate. The ovary is 2-celled with axial placentas (Fig. 2).

The type specimen of *Cotylanthera paucisquama* C.B. Clarke was collected by King in July 1875 from Sikkim (alt. 6000 ft), possibly near the place where we found the plants. Since then it was reported from Bhutan by Gammie, but no other additional material has been available from the Himalayas. It is noteworthy that *Cotylanthera yunnanensis* W.W. Smith (1921) described from Yunnan of West China well agrees with *C. paucisquama* in all essential

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Fig. 1. *Cotylanthra paucisquama* C.B. Clarke.  
Fresh material collected at Palmajua (Photo by H. Ohashi).

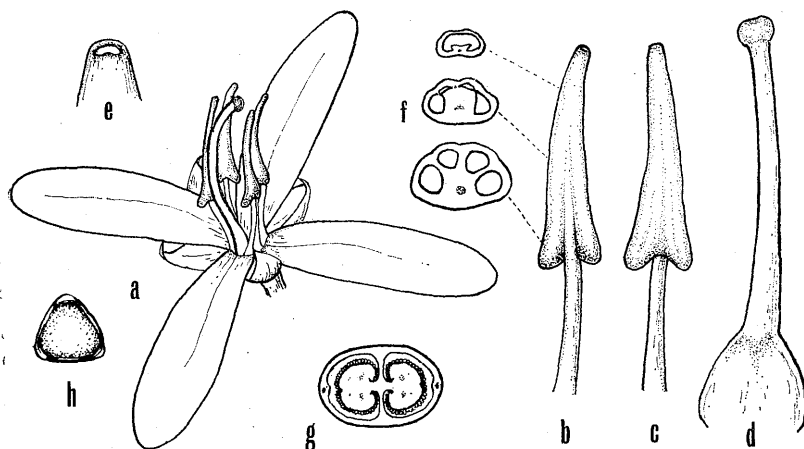


Fig. 2. *Cotylanthra paucisquama* C.B. Clarke, drawn from material collected at Palmajua.  
a. A flower.  $\times 6$ . b. A stamen seen from outside.  $\times 6$ . c. The same seen from inside.  $\times 6$ .  
d. A pistil.  $\times 6$ . e. The tip of anther (mag.). f. Cross sections of anther (mag.). g. A  
cross section of the middle part of ovary.  $\times 6$ . h. A pollen grain (mag.).

characters.

From continental Asia, another species, *Cotylanthera caerulea* Lace (1914), was published based on the specimen from Maymyo Plateau of C. Burma (Fig. 3). It is smaller than *C. paucisquama* in every respect. The stems are simple; the flowers generally 3–6 mm long; the corolla-lobes are 3–4.5 mm long and obtuse at the apex; the anthers oblong 1.2–1.8 mm long, cordate at the base, subtruncate at the apex, and dehiscent by a flattish slit; the filaments filiform, slightly longer than the anther, and 1.5–2.5 mm long; the style is filiform, and 3.5–5 mm long. *C. caerulea* has been known from Thailand, Burma, and Assam. It is interesting that the plants collected at Phulchoki (alt. 1770 m) near Kathmandu of C. Nepal by Manandhar in 1967 seem to belong to this species, although the flowers are slightly larger attaining to 10 mm long.

On the other hand, *Cotylanthera tenuis* Blume (1825), the type species of the genus, was described from Java, and is now considered to be widely distributed also in Sumatra, Borneo, Philippines, and New Guinea. In this

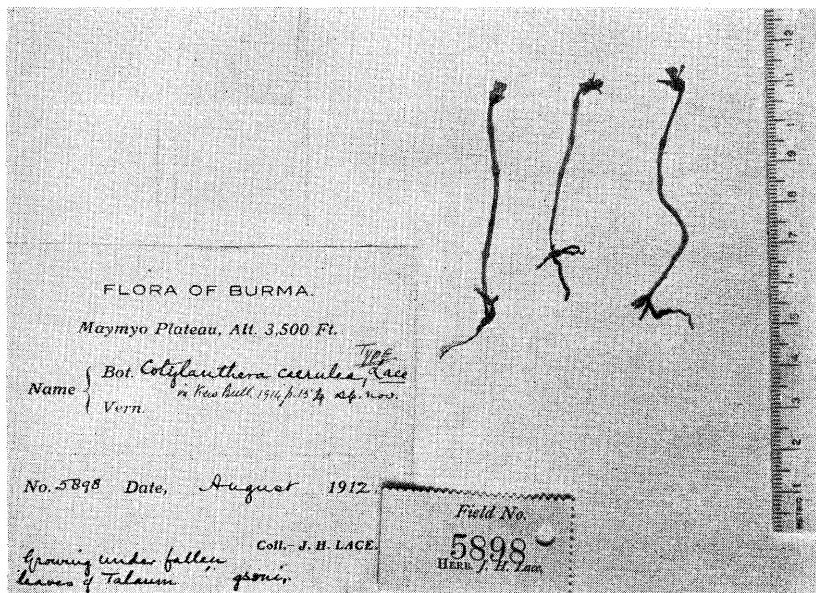


Fig. 3. *Cotylanthera caerulea* Lace. Type.

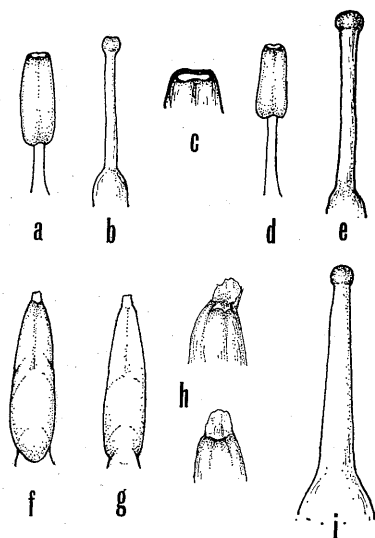


Fig. 4. a, b. *Cotylanthera tenuis* Bl. c-e. *C. caerulea* Lace. f-i. *C. Loheri* Hara. a, d, f. Stamen seen from outside.  $\times 6$ . g. The same seen from inside.  $\times 6$ . b, e, i. Pistil.  $\times 6$ . c, h. The tip of anther (mag.).

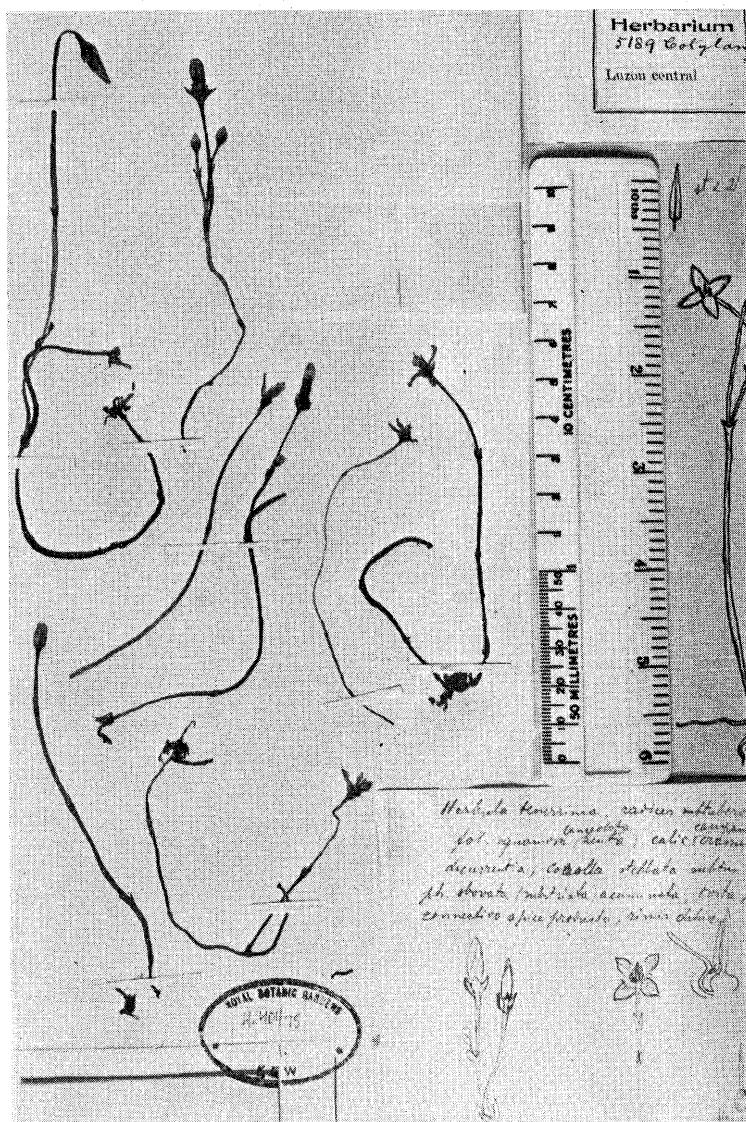
species, the stems are often branched, and the internodes and peduncles are often shorter. The flowers are 6-10 mm long; the corolla-lobes are 4-9 mm long and 1.3-3 mm wide, apiculate at the apex; the anthers are oblong, 1.8-3 mm long, subtruncate at the apex, dehiscent by a flattish apical pore, shallowly cordate at the base; the filaments are filiform, shorter than the anther, and 1-2 mm long; the style is filiform, 4-5 mm long, and not thickened at the base.

*Eophyton tenellum* A. Gray (1871) from Philippines is very similar to *Cotylanthera tenuis*. But the stems are often more slender and simple; the anthers are obtuse at both ends, the filaments are filiform and often nearly as long as the anther; and

the style is often slightly shorter than the stamens. The same form was also collected from Palawan by J.B. Steere. But they seem to fall within the variations of *C. tenuis*.

Quite unexpectedly, however, I found in the Kew Herbarium very peculiar plants collected by A. Loher between 1890 and 1904 from Montalban of Central Luzon (Fig. 5). They are clearly distinguished from all the species of the genus hitherto described by nearly sessile stamens, anthers with distinctly prolonged connective, and thick style (Fig. 4 a-h), and they are here named as *Cotylanthera Loheri* Hara. Loher collected the plants several times from the same locality, and prepared their drawings and description from life, but they have been confounded with *C. tenuis* up to the present.

The results of my observations above mentioned are summarized as follows. However, this tiny saprophyte has likely been overlooked by collectors, and more materials accompanied with careful notes at the natural habitat are much needed for further critical researches of the genus.

Fig. 5. *Cotylanthra Loheri* Hara. Type.

I wish to express my sincere thanks to the keepers of herbaria of the Royal Botanic Gardens at Kew and Edinburgh, the British Museum (Natural History) at London, and the Department of Medicinal Plants at Kathmandu for giving me facilities to study the specimens in their charge.

# Key to species

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|---|---|--|
| 1 | { | Stamens subsessile. Anthers lanceolate-oblong 3-4 mm long, with distinctly extended connective at the apex. Style thickened towards the base ..... 4) <i>C. Loheri</i>   |
|   |   | Stamens with distinct filiform filament. Anthers obtuse or subtruncate at the apex..... 2  |
| 2 | { | Anthers 3.5-5.5 mm long, subsaggitate, dehiscent by a small apical pore, deeply cordate at the base. Style 6-8 mm long. Flowers larger 10-14 mm long. Stems simple, often with elongated upper internodes ..... 3) <i>C. paucisquama</i>                   |
|   |   | Anthers smaller 1.2-3 mm long, oblong or narrow oblong, subtruncate or obtuse at the apex, dehiscent by a flattish apical pore, cordate or obtuse at the base. Style filiform 3-5 mm long. Flowers smaller 3-10 mm long ..... 3                            |
| 3 | { | Filaments longer than the anthers, 1.5-2.5 mm long. Anthers oblong 1.2-1.8 mm long. Corolla-lobes obtuse at the apex. Slender plants with often smaller flowers 3-6 mm long ..... 2) <i>C. caerulea</i>  |
|   |   | Filaments shorter than the anthers, rarely as long as anthers. Anthers narrow oblong or oblong, 1.8-3 mm long. Flowers 6-10 mm long. Corolla-lobes apiculate at the apex. Stems often branched, sometimes with shorter internodes..... 1) <i>C. tenuis</i> |

1) ***Cotylanthera tenuis*** Blume, Bijdr. 708 (1825)—Figdor in Ann. Jard. Bot. Buitenz. 14: 213, t. 16 & 17 (1896)—Schumann et Lauterbach, Fl. Deuts. Schutz. Südsee 500 (1900)—Merrill in Philip. Journ. Sci. 1 Suppl.: 223 (1906); Enum. Philip. Pl. 3: 317 (1923)—v. Steenis in Trop. Natuur 23(3): 52, f. 12 left (1934)—Backer et Bakh. f., Fl. Jav. 2: 438 (1965). (Fig. 4 a, b)

*Eophyton Lobbii* A. Gray in Journ. Linn. Soc. 11: 23 (1871).

*Eophyton tenellum* A. Gray, l.c. 23 (1871).

*Cotylanthera tenella* (A. Gray) Gilg in Engl., Pfl.-fam. IV-2: 64 (1895).

Java (Lobb—type of *E. Lobbii*, K); Bot. Gard. Bogor (A.H.G. Alston,

1954, no. 13519, BM).

Sumatra (H.O. Forbes, 1881-82, no. 2138, BM).

N. Borneo. Hills above Tenom, 1300-2000 ft (L.S. Gibbs, 1910, no. 2906, BM).

Philippines. Mangs or Mangsi Is. (near Balabac) (Wilkes Exped.—type of *E. tenellum*, K). Puerto Princesa, Palawan (J.B. Steere, Dec. 1876, K).

Celebes. Sabal, 1300 ft (H.F. Comber, no. 4194, K).

New Guinea. ? Velel, 500 m (R. Schlechter, Jul. 1907, no. 16281, K); Papua, Kokoda, 1200 ft (C.E. Carr, Apr. 1936, no. 16396, BM).

Distr. Java, Sumatra, Borneo, Philippines, Celebes, and New Guinea.

2) ***Cotylanthera caerulea*** Lace in Kew Bull. 1914: 154 (1914)—Fletcher et Kerr in Fl. Siam. Enum. 3: 64 (1951). (Figs. 3 & 4 c-e)

*Cotylanthera paucisquama* Clarke sensu Bull. Dept. Medic. Pl. Nep. 2: 78, t. (1969).

Burma. Maymyo Plateau, 3500 ft (J.H. Lace, Aug. 1912, no. 5898—type of *C. caerulea*, K, E). Paungdaw Power Station, Tavoy Distr., 2000 ft (J. Keenan, Tun Aung & Rule, Aug. 1961, no. 759, K, E).

Thailand. Sai Yok, Kanburi, 200 m (A. Marcan, no. 2426, K).

Assam. Delei Valley, 3000-4000 ft (K.-Ward, Aug. 1928, no. 8510, K).

Nepal. Handy Mul, Phulchoki, 5800 ft (R.K. Manandhar, Aug. 24, 1967, no. 7350, KATH, BM).

Distr. Nepal, Assam, Burma, and Thailand.

3) ***Cotylanthera paucisquama*** C.B. Clarke in Fl. Brit. Ind. 4: 94 (1883)—Hara in Fl. E. Himal. 3: 90, t. 6 d, e (1975). (Figs. 1 & 2)

*C. yunnanensis* W.W. Smith in Not. Bot. Gard. Edinb. 13: 158 (1921)—Icon. Cormophyt. Sin. 3: 412, f. 4777 (1974).

Sikkim, 6000 ft (G. King, Jul. 1875, no. 2163—type of *C. paucisquama*, CAL, K).

Darjeeling. Palmajua, 2200 m (Kanai, Ohashi, Hara, Iwatsuki & Ohba, Aug. 7, 1972, no. 723643, TI, BM).

China, Yunnan: Shweli—Salwing divide, 8000 ft (Forrest, Sep. 1919, no. 18534—lectotype of *C. yunnanensis*, E, K, CAL); Tengyuch, 6000 ft (Forrest, Jul. 1912, no. 8496—syntype of *C. yunnanensis*, E).

Distr. Sikkim, Darjeeling, Bhutan, and W. China.

4) ***Cotylanthera Loheri*** Hara, sp. nov. (Figs. 4 f-i & 5)

*Saprophyta gracilis*. Caules 6-11 cm alti simplices vel 1-2-ramosi 4-angulares, internodiis superioribus elongatis. Folia squamiformia oblongo-lanceolata 2-3 mm longa. Pedunculus 6-20 mm longus. Flores 1-1.5 cm in diametro caeruleo-violascentes. Calycis tubus brevis late campanulatus; lobi 4 late triangulares acuti 2-2.5 mm longi. Corollae lobi 4 oblongi 5-8 mm longi 1.5-3 mm lati, apice obtusi minute apiculati. Stamina 4 subsessilia; filamenta brevissima lata; antherae flavae lanceolato-oblongae 3-4 mm longae, apice poro parvo dehiscentes, connectivo distincte producto; pollinis grana 7-8  $\mu$  longa tricolporata laevia. Stylus 4-5.5 mm longus, staminibus exsertus, crassus subquadrangularis ad basin incrassatus; stigma minutum. Capsula subglobosa ca. 3 mm longa, corolla persistenti obtecta; semina numerosissima minuta obconica, testa reticulata.

Philippines. Luzon: Montalban (A. Loher, Oct. 26, 1895, no. 5189—type in K); ibid. (A. Loher, nos. 4088, 6525 & 6535, K).

Distr. Philippines.

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*Cotylanthera* 属はリンドウ科に入られている小形な腐生植物で、主に東南アジア熱帯に分布している。ヒマラヤではごく稀であるが、1972年にシンガリラ山中で多くの個体を観察することができた (Figs. 1 & 2)。これは *C. paucisquama* C.B. Clarke に一致し、雲南から記載された *C. yunnanensis* も同一種である。またネパール、カトマンズ近くで採集されたものは *C. caerulea* Lace にあたり、この種はタイ、ビルマ、アッサムから見出されている。

一方この属の基準種である *C. tenuis* Bl. はジャワ、スマトラ、ボルネオ、フィリピン、ニューギニアに広く分布している。更に意外にもフィリピンに非常に変わった新種 *C. Loheri* Hara があることが分った。これは他のすべての種と異なり、雄蕊はほぼ無柄で、葯の先端開口部の一側に葯隔が突出している点で明らかに区別される。

□多和田真淳・高良拓夫：沖縄の山野の花 B5 版，144 頁，カラー写真 161。那覇市大道 212，〒902，風土社，1975 年 5 月 15 日発行，2,100 円。沖縄の植物 161 種についてカラー写真とその解説を付したものである。沖縄の植物に関しては図鑑類が殆んどなく、美しい花を見ても名を調べることは専門家以外には困難であった。沖縄を特徴づける目立つ植物を主にして取上げてある。実物にふれる機会の少ない植物の見事な花や果実が見られて興味深だけでなく、専門家にとっても貴重な写真が多い。沖縄産のカンアオイ類が殆んど網羅されているのは、この類に関心のある者には見ものである。

(山崎 敬)